CLAIMS

1. A game system comprising a first game execution apparatus and a second game execution apparatus which each execute
5   a game in accordance with a game program, and a portable storage medium,

wherein the first game execution apparatus converts first image data to second image data and outputs the second image data, the first image data being suited for use in
10   the first game execution apparatus, and the second image data being suited for use in the second game execution apparatus,

the portable storage medium acquires the second image data from the first game execution apparatus and stores
15   the second image data, and outputs the second image data according to a request by the second game execution apparatus, and

the second game execution apparatus acquires a game program suited for use in the second game execution
20   apparatus, requests and acquires the second image data from the portable storage medium, executes a game in accordance with the acquired game program, and generates an image from the acquired second image data and displays the generated image in accordance with progression of the
25   game.

2. The game system of Claim 1,

wherein the portable storage medium further acquires the game program suited for use in the second game execution

5   apparatus from the first game execution apparatus and stores the game grogram, and if game software that includes the game program and the second image data is permitted to be used by the second game execution apparatus, outputs the game software according to the request by the second

10   game execution apparatus.

3. The game system of Claim 2,

wherein if the game software is permitted to be copied to the portable storage medium, the portable storage medium

15   acquires the game software from the first game execution apparatus.

4. A game execution apparatus for executing a game in accordance with a game program, comprising:

20   a conversion unit operable to convert first image data suited for use in the game execution apparatus, to second image data suited for use in another game execution apparatus; and

an output unit operable to output the second image

25   data to a portable storage medium.

5. The game execution apparatus of Claim 4, further comprising:

an acquisition unit operable to acquire display information showing a display capacity of a display device equipped in the other game execution apparatus, from the portable storage medium,

wherein the conversion unit converts the first image data to the second image data based on the display information.

6. The game execution apparatus of Claim 5,

wherein the display information shows a number of pixels of a monitor included in the display device.

7. The game execution apparatus of Claim 5,

wherein the display information shows a clock rate of a control unit included in the display device.

8. The game execution apparatus of Claim 5,

wherein the display information shows a data transfer rate of a bus included in the display device.

9. The game execution apparatus of Claim 4, further comprising:

an acquisition unit operable to acquire available memory information showing an available memory size of the portable storage medium, from the portable storage medium,

5   wherein the conversion unit converts the first image data to the second image data that is within the available memory size shown by the available memory information.

10. The game execution apparatus of Claim 4,

10   wherein the first image data represents an object by a free-form surface, and the second image data represents the object by a polygon, and

the conversion unit generates the polygon from the free-form surface.

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11. The game execution apparatus of Claim 10,

wherein the conversion unit generates the polygon from the free-form surface, by setting polygon vertices at a predetermined interval in a part of the free-form

20   surface that has curvedness no smaller than a predetermined value, and setting polygon vertices at an interval greater than the predetermined interval in a part of the free-form surface that has curvedness smaller than the predetermined value.

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12. The game execution apparatus of Claim 11, further comprising:

an acquisition unit operable to acquire at least one of display information and available memory information from the portable storage medium, the display information showing a display capacity of a display device equipped in the other game execution apparatus, and the available memory information showing an available memory size of the portable storage medium,

wherein the conversion unit includes:

a setting unit operable to set a lower-limit curvature and an upper-limit polygon side length based on the acquired display information or available memory information;

a control unit operable to, for each curve that represents the free-form surface, determine a start point of the curve as a polygon vertex, move a target point along the curve from the start point to an end point of the curve by a predetermined distance, and have a calculation unit, a judgment unit, and a determination unit perform respective operations each time the target point is moved by the predetermined distance;

the calculation unit operable to calculate a cumulative curvature at the target point from an immediately preceding polygon vertex, by adding a curvature at the target point to a cumulative curvature calculated

immediately before the target point is moved by the predetermined distance;

the judgment unit operable to judge whether the cumulative curvature at the target point is no smaller

5   than the lower-limit curvature and whether a distance from the immediately preceding polygon vertex to the target point is no smaller than the upper-limit polygon side length;

the determination unit operable to determine the

10 target point as a polygon vertex, if the cumulative curvature at the target point is no smaller than the lower-limit curvature or if the cumulative curvature is smaller than the lower-limit curvature but the distance is no smaller than the upper-limit polygon side length;

15 and

a polygon generation unit operable to generate the polygon based on coordinates of determined polygon vertices, after the target point has been moved from the start point to the end point of each curve representing the free-form

20 surface.

13. The game execution apparatus of Claim 12,

wherein the setting unit selects the lower-limit curvature and the upper-limit polygon side length which

25 correspond to the display capacity shown by the display

information, from a conversion table that shows a correspondence between display capacities and lower-limit curvatures and upper-limit polygon side lengths.

14. The game execution apparatus of Claim 13,

wherein if the second image data generated by the conversion unit exceeds the available memory size shown by the available memory information, the setting unit increases the lower-limit curvature and the upper-limit polygon side length.

15. The game execution apparatus of Claim 13,

wherein the setting unit holds the conversion table.

16. The game execution apparatus of Claim 13,

wherein the setting unit reads the first image data and the conversion table corresponding to the first image data, from a game storage medium.

17. The game execution apparatus of Claim 10, further comprising:

an acquisition unit operable to acquire available memory information showing an available memory size of the portable storage medium, from the portable storage medium,

wherein if the second image data exceeds the available memory size shown by the available memory information, the conversion unit regenerates a rougher polygon from the free-form surface.

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18. The game execution apparatus of Claim 10, further comprising:

an acquisition unit operable to acquire display information or available memory information from the portable storage medium, the display information showing a display capacity of a display device equipped in the other game execution apparatus, and the available memory information showing an available memory size of the portable storage medium,

wherein the conversion unit selects, from a conversion table that shows a correspondence between input values for determining polygon roughness and display capacities or available memory sizes, an input value corresponding to the display capacity shown by the acquired display information or the available memory size shown by the acquired available memory information, and generates the polygon using the selected input value.

19. The game execution apparatus of Claim 18, wherein the conversion unit holds the conversion

table.

20. The game execution apparatus of Claim 18,

wherein the conversion unit reads the first image

5   data and the conversion table corresponding to the first

image data, from a game storage medium.

21. The game execution apparatus of Claim 4, further

comprising:

10   a holding unit operable to hold a first game program

suited for use in the game execution apparatus, and a second

game program for executing a same game as the first game

program and suited for use in the other game execution

apparatus,

15   wherein the output unit outputs the second game

program to the portable storage medium.

22. A portable storage medium that is removably connectable

to a first game execution apparatus and a second game

20   execution apparatus which each execute a game in accordance

with a game program, comprising:

an acquisition unit operable to acquire second image

data generated by converting first image data from the

first game execution apparatus, the first image data being

25   suited for use in the first game execution apparatus, and

the second image data being suited for use in the second

game execution apparatus;

a storage unit operable to store the acquired second

image data; and

5   an output unit operable to output the second image

data stored in the storage unit to the second game execution

apparatus, according to a request by the second game

execution apparatus.

10   23. The portable storage medium of Claim 22,

wherein the acquisition unit acquires game software

that includes the second image data from the first game

execution apparatus, and stores the acquired game software

to the storage unit,

15   the portable storage medium further comprises:

a holding unit operable to hold management

information for managing use of the game software; and

a judgment unit operable to judge whether the game

software is permitted to be used according to the management

20   information, when the second game execution apparatus

requests the game software, and

the output unit outputs the game software to the second

game execution apparatus, if the judgment unit judges that

the game software is permitted to be used.

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24. The portable storage medium of Claim 23,

wherein the acquisition unit acquires the management information corresponding to the game software, from the first game execution apparatus, and

5   the holding unit holds the acquired management information.

25. The portable storage medium of Claim 23,

wherein the holding unit holds, as the management

10   information, valid period information showing a valid period during which the game software is permitted to be used,

the judgment unit judges whether the valid period shown by the valid period information has not passed, and

15   the output unit outputs the game software to the second game execution apparatus, if the judgment unit judges that the valid period has not passed.

26. The portable storage medium of Claim 25,

20   wherein the acquisition unit acquires additional valid period information showing an additional valid period during which the game software is permitted to be used, and

the holding unit updates the valid period information,

25   by adding the additional valid period shown by the

additional valid period information to the valid period shown by the valid period information.

27. The portable storage medium of Claim 23,
   wherein the holding unit holds the management information in an area that is inaccessible from outside the portable storage medium.

28. The portable storage medium of Claim 23,
   wherein the holding unit further holds copy information showing whether the game software is permitted to be copied to the portable storage medium,
   the judgment unit further judges whether the game software is permitted to be copied to the portable storage medium, based on the copy information, and
   the acquisition unit acquires the game software from the first game execution apparatus, if the judgment unit judges that the game software is permitted to be copied to the portable storage medium.

29. The portable storage medium of Claim 28,
   wherein the copy information shows a number of times the game software is permitted to be copied to the portable storage medium,
   the judgment unit judges whether the number shown

by the copy information is no less than 1, and

if the judgment unit judges that the number is no

less than 1, the acquisition unit acquires the game software

from the first game execution apparatus and then decrements

5   the number by 1.

30. The portable storage medium of Claim 29,

wherein the acquisition unit acquires the copy

information from an external management device, and

10   the holding unit holds the acquired copy information.

31. The portable storage medium of Claim 29,

wherein the acquisition unit acquires additional copy

information showing an additional number of times the game

15   software is permitted to be copied to the portable storage

medium, from an external management device, and

the holding unit updates the copy information by

adding the additional number shown by the additional copy

information to the number shown by the copy information.

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32. The portable storage medium of Claim 29,

wherein the acquisition unit acquires a copy program

which describes a procedure of copying the game software

to the portable storage medium, from an external management

25   device.

33. A game execution apparatus for executing a game in accordance with a game program, comprising:

a read unit operable to read, from a portable storage
5   medium, second image data generated by converting first image data, the second image data being suited for use in the game execution apparatus, and the first image data being suited for use in another game execution apparatus;

an acquisition unit operable to acquire a game program
10   suited for use in the game execution program; and

a game execution unit operable to execute a game in accordance with the acquired game program, and generate an image from the acquired second image data and display the generated image in accordance with progression of the
15   game.

34. The game execution apparatus of Claim 33, further comprising:

an output unit operable to output display information
20   showing a display capacity of the game execution apparatus, according to a request by the portable storage medium.

35. The game execution apparatus of Claim 34,

wherein the output unit outputs, as the display
25   information, a number of pixels of a display device in

the game execution apparatus, a clock rate of a control

unit in the game execution apparatus, or a data transfer

rate of a bus in the game execution apparatus.

5   36. The game execution apparatus of Claim 33,

         wherein the acquisition unit acquires permission

information for granting use of game software that includes

the second image data and the game program and is stored

on the portable storage medium, from an external server

10   device through communication, and

         the game execution unit uses the game software, if

the acquisition unit acquires the permission information.

       37. The game execution apparatus of Claim 36,

15   wherein the permission information is a decryption

key for decrypting the game software which has been

encrypted, and

         the game execution apparatus further comprises:

         a decryption unit operable to decrypt the encrypted

20   game software using the decryption key.